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#3/2  
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12/3/02

Assistant Commissioner for Patents and Trademarks  
Washington DC, 20231

November 17, 2002

Dear Mr. Shah:

I am replying to your office communication mailed 07/05/2002 on my Patent Application 09/893,952, dated June 28, 2001 and titled "Orientation and Position Sensor."

Detailed action 1: I provide information below to support acceptance of claims.

Detailed action 2: I have substituted claim 1 with claim 4 to clearly specify the structure of the invention.

Detailed action 3: I have substituted claim 1 with claim 4 to distinctly claim the subject matter which applicant regards as the invention.

Detailed action 4: I have examined the patent by Grimson et al. (5,531,520) and determined that it does not anticipate this invention (see below).

Grimson claims an image data registration system. This system uses a camera with lens to collect the data, but the invention is software not hardware. Furthermore, the system has no ability to measure orientation and position of the object relative to the camera, relying on the human operator to interpret orientation and position.

**Conditional request for constructive assistance**

If for any reason this application is not believed to be in full condition for allowance, applicant respectfully requests the constructive assistance and suggestions of the examiner pursuant to M.P.E.P. & 2173.02 and 707.07(j) in order that the undersigned can place this application in allowable condition as soon as possible and without the need for further proceedings.

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Please replace Claims 1-3 with the following Claims:

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4. A sensor for measuring position and orientation of an object, comprising:

an imaging device;

a first feature of an alignment target;

a second feature of an alignment target;

a' whereby and the relative position and orientation of said first feature and said second feature measures up to three orthogonal positions and up to three orthogonal orientations of said object with respect to said imaging device when said first feature is in focus and said second feature is out of focus in said imaging device.

5. The sensor of claim 1 wherein the imaging device is a camera.

6. The sensor of claim 1 further including a monitor.

7. The sensor of claim 1 further including a computer.

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Sincerely,

  
Charles S. Vann